

LMR16006X/YEVM Evaluation Board

User's Guide



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LMR16006X/YEVM Evaluation Board

The Texas Instruments LMR16006XEVM and LMR16006YEVM evaluation module (EVM) helps designers evaluate the operation and performance of the LMR16006X and LMR16006Y switch-mode power-supply. This document describes the setup and the input/output connections of the EVM. Included are the board layout, schematic, and bill of materials.

1 Introduction

The Texas Instruments LMR16006X/6YEVM evaluation module (EVM) helps designers evaluate the operation and performance of the LMR16006X and LMR16006Y Switch Mode Power Supply.

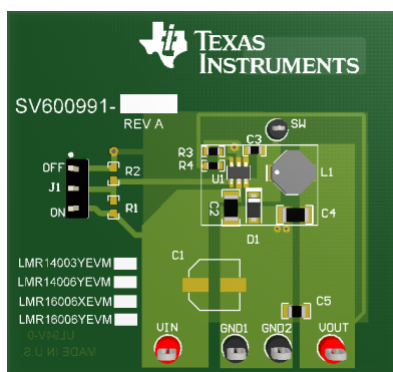


Figure 1. LMR16006X/6YEVM Board

The LMR16006X and LMR16006Y is a PWM DC/DC buck (step-down) regulator. With a wide input range from 4V to 60V, it is suitable for a wide range of applications from automotive to industry for power conditioning from unregulated sources. The LMR16006X/6YEVM evaluation board is designed to provide the design engineer with a fully functional power converter based on the buck topology to evaluate the LMR16006X/6Y series of buck regulators.

EVM Features

- 6V to 60V Input Voltage Range
- 5V Output Voltage
- Up to 600mA Output Current
- Switching Frequency (0.7MHz for X version, 2.1 MHz for Y version)
- Frequency Foldback Current Limit of 1.2A
- Internal Compensation

The EVM contains one DC / DC converter (See [Table 1](#))

Table 1. Device and Package Configurations

CONVERTER	EVM	IC	PACKAGE
U1	LMR16006XEVM	LMR16006XDDCR	SOT23-6
	LMR16006YEVM	LMR16006YDDCR	

2 Setup

This section describes the jumpers and connectors on the EVM and how to properly connect, set up and use the LMR16006X/6YEVM.

2.1 Input/Output Connector Description

Vin – Input is the power input terminal for the device. Adjacent to it is the GND reference ground. Use those terminals to attach the EVM to a cable harness.

Vout – Output is the output terminal for the LMR16006X/6Y switch-mode regulator. Adjacent to it is the GND reference ground.

EN – is the jumper used to enable the switch-mode converter. The rail will be enabled when the respective jumper is high or floating, and disabled when low. External resistors can also be used to adjust the EN turn off trip point, and the jumper should not be used in that case.

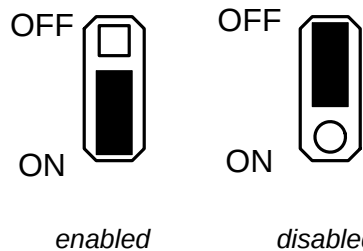


Figure 2. Enable Jumper Setting

2.2 Adjusting the Output Voltage

The output voltage can be changed from 5.0V to another voltage by adjusting the feedback resistors using the following equation:

$$V_{OUT} = V_{FB} (1 + (R4/R3)) \quad (1)$$

Where V is 0.765V

Test Points

TP_GND (x2)	Ground
TP_Vin	BUCK input
TP_Vout	BUCK output
TP_SW	BUCK phase Pin

3 Board Layout

Figure 3 and Figure 4 show the board layout for the LMR16006YEVM. The EVM offers jumper to enable the regulator.

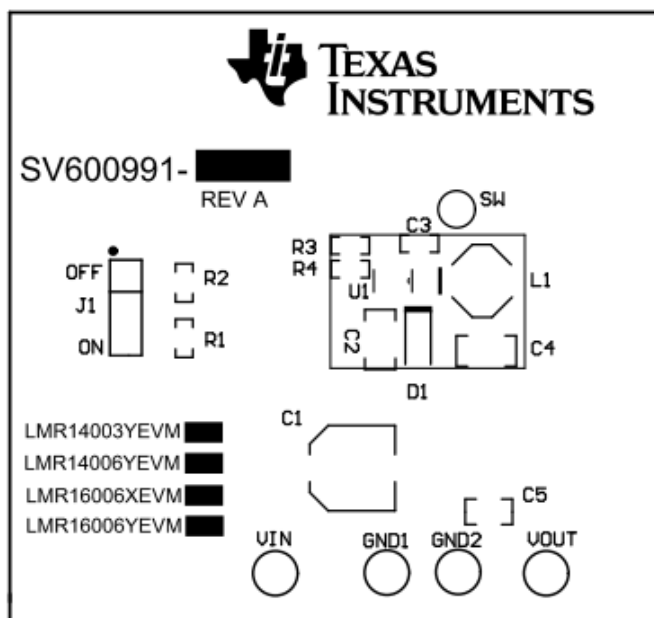


Figure 3. Top Layer

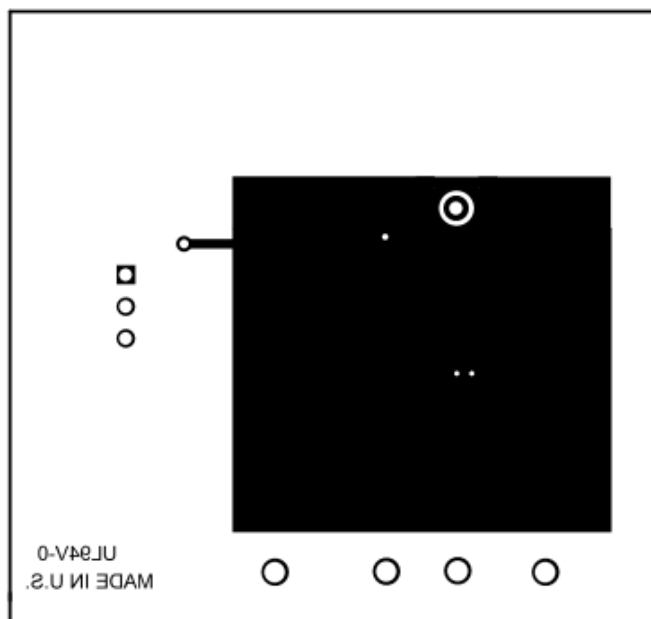


Figure 4. Bottom Layer

Figure 5. LMR16006XEVMSchematic

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- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

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3. Use of EVMs only after User obtains the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to EVMs. Also, do not transfer EVMs, unless User gives the same notice above to the transferee. Please note that if User does not follow the instructions above, User will be subject to penalties of Radio Law of Japan.

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